No.



7900009

ARTHUR ONE SHAMES OF AVIOLEMENT

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Pennsylvania Agricultural Experiment Station

Withereas, there has been presented to the

Дабабно францания съ транцания съ

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF ACCURACY.

YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT AT THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT.

INITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

BENTGRASS

'Penneagle'

In Testimony Mixerot, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington

this 20th day of November in the year of our Lord one thousand nine

hundred and eighty.

LAN

Secretary of Agriculture

Allest

Synant B. Lesse

Plant Variety Protection Office Grain Division

arum Lucision Agricultural Marketing Geroice

UNITED STATES DEPARTME AGRICULTURAL MARI LIVESTOCK, POULTRY, GRA	CETING SERVICE AIN & SEED DIVISION		No constituents for all	FORM APPROVED OMB NO. 40-R3822
APPLICATION FOR PLANT VARIE INSTRUCTIONS: See Reverse,	TY PROTECTIO	N CERTIFICATE	be issued unless a co has been received (5 l	int variety protection may impleted application form J.S.C. 553).
1a. TEMPORARY DESIGNATION OF VARIETY	1b. VARIETY NAM	E	FOR OFFICE	AL USE ONLY
PSU=PBCB	PENNEAGLE		79000	9
2. KIND NAME	3. GENUS AND SPE		FILING DATE	THE 30 A.M.
Creeping Bentgrass 4. FAMILY NAME (BOTANICAL)	Agrostis p		FEE RECEIVED	DATE DP
Walle (BOYANIDAE)	5. DATE OF DETE	HMINATION	\$500,00 \$250.00	10-16-78
Gramineae	1965			
Pennsylvania Agricultural Experiment Station	Rm 229 Agri University	t and No. or R.F.D. No., cultural Admin Park, PA 16802	istration Bldg.	8. TELEPHONE AREA CODE AND NUMBER Area Code (814) 865-5419
 IF THE NAMED APPLICANT IS NOT A PE ORGANIZATION: (Corporation, partnersh 	RSON, FORM OF ip, association, etc.)	10. IF INCORPORATI	ED, GIVE STATE AND	11. DATE OF INCOR- PORATION
Land Grant University 12. NAME AND MAILING ADDRESS OF APPLACE B. R. Baum Dr. W. I. Thoma: Rm 229 Agriculti University Park 13. CHECK BOX BELOW FOR EACH ATTACH 13A. Exhibit A, Origin and Bree 13B. Exhibit B, Novelty Statem	Assoc. Dean area Assoc. Dean area Administres 16802 and Administres are area area area area area area ar	Research ation Bldg.		
13C. Exhibit C, Objective Descr 13D. Exhibit D, Additional Descr 14a. DOES THE APPLICANT(S) SPECIFY THAT	cription of the Varie	ty. IETY BE SOLD BY VAF		
SEED? (See Section 83(a). (If "Yes," answered the APPLICANT(S) SPECIFY THAT	er 14B and 14C below.)	X YES	NO	
LIMITED AS TO NUMBER OF GENERATI	ONS?	TION BEYOND B		ATIONS OF PRODUC-
X YES NO		FOUNDATION	REGISTERED	X CERTIFIED
 15a. DID THE APPLICANT(S) FILE FOR PROTI name of countries and dates.) 15b. HAVE RIGHTS BEEN GRANTED THIS VA and dates.) 				NO (If "Yes," give
				See a se
	1	1. 12 m		
	E PUBLICATION OF H	IIS/HER (THEIR) NAME	(S) AND ADDRESS IN	THE OFFICIAL
16. DOES THE APPLICANT(S) AGREE TO THE JOURNAL? X YES	NO			
17. The applicant(s) declare(s) that a viable replenished upon request in accordance	sample of basic seed with such regulation	d of this variety will be ns as may be applicabl	e.	
17. The applicant(s) declare(s) that a viable	sample of basic seed with such regulation e owner(s) of this se	d of this variety will be ns as may be applicabl xually reproduced nov	e. vel plant variety, and l	pelieve(s) that the
17. The applicant(s) declare(s) that a viable replenished upon request in accordance The undersigned applicant(s) is (are) th variety is distinct, uniform, and stable a	sample of basic seed with such regulation e owner(s) of this se as required in Section	d of this variety will be ns as may be applicabl xually reproduced nov 141, and is entitled to	e. vel plant variety, and be protection under the	pelieve(s) that the provisions of Section
The applicant(s) declare(s) that a viable replenished upon request in accordance. The undersigned applicant(s) is (are) the variety is distinct, uniform, and stable a 42 of the Plant Variety Act.	sample of basic seed with such regulation e owner(s) of this se as required in Section	d of this variety will be ns as may be applicabl xually reproduced nov 141, and is entitled to in can jeopardize prot	e. vel plant variety, and be protection under the	provisions of Section enalties.

INSTRUCTIONS

GENERAL: Send an original copy of the application and exhibits, at least 2,500 viable seeds, and \$500 fee (\$250 filing fee and \$250 examination fee) to U.S. Dept. of Agriculture, Agricultural Marketing Service, Livestock, Poultry, Grain and Seed Division, Plant Variety Protection Office, National Agricultural Library Building, Beltsville, Maryland 20705. (See section 180.175 of the Regulations and Rules of Practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

ITEM

- Give the date the applicant determined that he had a new variety based on (1) the definition in section 41(a) of the Act and (2) the date a decision was made to increase the seed.
- Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified and (4) evidence of uniformity and stability.

AMS, GRAIN DIV.

- Give a summary statement of the variety's novelty. Clearly state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties:

 (1) identify these varieties and state all differences objectively; (2) attach statistical data for characters expressed numerically and demonstrate that these differences are significant; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.
- Fill in the Exhibit C, Objective Description form, for all characteristics for which you have adequate data.
- Describe any additional characteristics that are not described, or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe, such as, plant habit, plant color, disease resistance, etc.
- If "YES" is specified (seed of this variety be sold by variety name only as a class of certified seed) the applicant may NOT reverse his affirmative decision after the variety has either been sold and so labeled, his decision published, or the certificate has been issued. However, if the applicant specified "NO," he may change his choice. (See section 180.16 of the Regulations and Rules of Practice.)
- 15a See section 42 of the Plant Variety Protection Act and section 180.7 of the Regulations and Rules of Practice.

ORIGIN AND BREEDING HISTORY Penneagle Creeping Bentgrass

Penneagle Creeping Bentgrass, <u>Agrostis palustris</u>, (experimental designation PSU-PBCB) was developed in its present form with the main breeding objectives as follows:

- 1. Broad genetic base, opposed to narrow line variety, for wide area of adaptation.
 - 2. Propagation by seed with acceptable commercial seed production.
 - 3. Minimal plant segregation, particularly under putting green use conditions.
 - 4. High level putting green quality.
- 5. Vigor to compete favorably with annual bluegrass, Poa annua, invasion, but curtailed compared to Penncross to avoid excessive thatch, mat and grain buildup.
 - 6. Favorable disease reaction.

Penneagle is a four-clone synthetic with the following origin and source of parental clones at the Turfgrass Research Center, Pennsylvania Agricultural Experiment Station:

- No. 1: 3rd generation seedling selection from Washington bent (1938 source)
- No. 2: 3rd " " Seaside (1930 source)
- No. 3: 3rd " " Cocoos (1932 source)
- No. 4: 2nd " " Washington (1933 source)

The above material was the product of an open pollinated crossing and selection program to develop vegetatively propagated bentgrasses for putting greens with emphasis on disease resistance.

This program was initiated in 1958 utilizing a pool of 156 vegetative bent lines, for which turf performance data was available for 3-15 years. From this group 21 were selected and vegetatively planted for seed production in an 18-replication open pollinated nursery.

Following 1959 and 1960 seed harvest 16 of the original 21 lines were planted for turf testing. Replicated trials were maintained at 3/16- and 1/2-inch cutting height and two nitrogen levels to screen out excessive vigor and disease susceptible types. Based on a three-year screening, 7 lines showed promise compared to Penncross and Seaside bents, the commercial checks.

The seven lines were placed in 3 to 5 clone combinations in University Park, Pa. and several Oregon locations based on previous anthesis data. Since Penna. anthesis data did not correlate with Oregon, most subsequent seed increase and crossing work was carried out in Oregon in cooperation with Roselawn Seed Co., Rudy-Patrick Seed Co., and Bohnert Farms.

Component and polycross lines were turf tested at University Park and in cooperation with golf course superintendents in Penna., Ohio, Illinois and North Carolina. Based on very favorable turf performance, a four clone line PBCB, was planted in the 1965 Bent Evaluation Test, along with the more narrow lines F and J. One parent in the PBCB was later changed based on multiple location and years anthesis data in Oregon.

The variety is "relatively" uniform for a polycross consisting of four parental clones as expressed in flowering head type. Heads are predominantly red (80%) to a dark brown (20%), and are highly consistent for the two generations of

reproduction by seed - Breeders and Certified. This fact is illustrated in head type of four parents (Figure 1), first reproductive generation for Breeders Seed (Figure 2), and second reproductive generation for Certified Seed (Figure 3A). Comparative head types in field stands in the same area, and on the same date are shown for Seaside (Figure 3B), and Penncross (Figure 3c).

Variants produced during the second generation consist of less than 0.1% plants with head types lacking red or dark brown panicle pigmentation. Balanced uniformity of plant types for vigor is confirmed by lack of major segregation in putting green turf, the main acceptance test of a commercial seed propagated bentgrass cultivar.

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DATA INDICATIVE OF NOVELTY Penneagle Creeping Bentgrass

Penneagle Creeping Bentgrass is an improved variety of grass developed specifically for use on golf course putting greens and related areas such as golf tees and fair-ways. Its novelty and especially its performance for designated uses have been documented in a series of replicated experiments and testing during its development over a period of nearly 20 years.

Current commercial creeping bentgrass cultivars propagated by seed consist of Penncross, Seaside, Prominent and Emerald. Penneagle has been demonstrated to be a distinct and novel cultivar, significantly differing from each of the other current cultivars in such characters as maturity, floral morphology, texture, turf quality as a closecut putting green turf, and disease resistance.

Penncross most closely resembles Penneagle in turfgrass performance characters, but differs in maturity and floral morphology.

Table 2. Bentgrass Maturity Characteristics. Oregon (Revised and updated)

Cultivar	1st 1978	1st Heading	1980	1st	lst Anthesis	1000	50%	50% Athhesis	is
Penneagle	May 30 May 29 May 31	May 29	May 31	June 10	June 12	June 10 June 12 June 14 June 21 June 21 June 22	June 21	June 2	\vdash
Penncross	June 14 June 12 June 17	June 12	June 17	June 24	June 22	June 24 June 22 June 25 July 4 June 28 July 8	July 4	June 28	
Seaside	June 16 June 10 June 20	June 10	June 20	June 27 June 20	June 20	June 28 Jule 6 June 28	Jule 6	June 28 July 10	
Prominent	June 15 June 11 June 18	June 11	June 18	June 26	June 22	June 26 June 22 June 28 July 7 July 2 July 11	July 7	July 2	
Emerald			June 14			June 23			

March 14, 1979

U.S. Department of Agriculture Agricultural Marieting Service Livestock, Poultry, Grain & Seed Tivision Beltsville, Maryland 20705

Exhibit 13C

OBJECTIVE DESCRIPTION OF VARIETY BENTGRASS (Agrostis spp.)

Name of Applicant(s)	Variety Name or Temporary
Pennsylvania Agricultural Experiment Station	Designation PENNEAGLE
Address (Street and No. or R.F.D. No, City, &	PSU-PBCB (Temporary)
Dr. B. R. Baumgardt ZIP Code)	Penneagle Creeping Bentgrass
Associate Director	FOR OFFICIAL USE ONLY
229 Agricultural Administration Bldg	PVPO Number
University Park, PA 16802	79 00009
	characters that best describe ol A indicates decimal.
COMPARISON VARIETIES FOR USE BELOW	
1= Astoria 2= Exeter 3= Highland 4= Seaside 7= Astra 8= Other Prominent	5= Penncross 6= Kingstown
	ping A. stolonifera (A.palustris) n bent A. canina ssp. montana
2. ADAPTATION: (O= Not Tested, 1= Not Adapted, 2. Northeast 2 Southeast 2 North Central 2. Other (Specify) Southwest	
3. MATURITY (At first anthesis): Use comparison v	grieties
12 Days earlier than 5 , Maturity same as	
4. HEIGHT (Average of longest 10 shoots from soil	surface to top of head):
82 Cm Height (at maturity) 4 Cm Shor	ter than 4
rail out netBuo (ac maoni ray)	Comparison
Height	same as >
5 Cm Tall	er than 5 Variety
5. GROWTH HABIT:	
% Prostrate 100% Decumbent % Genic	ulate LLJ Frect

Other (Specify)

Margins:

046 Mm Length

er 10. Lemma: Per la
Shape: Tanceolate 100 % Ovate % Obovate
% Elliptic % Oblong % Other (Specify)
0 4 Mm Width 115 Mm Length (exclusive of awn)
Color: T % Buff 100 % Silvery T % Other (Specify)
Surface: 100 % Glossy
Texture: 100 % Smooth % Punctate
Pubescence: 99 % Glabrous 1 % Sparse Copious
Basal Hairs: 70 % Absent 30 % Few Many
100 % Short
% Appressed 100% Ascending 5 Spreading
Awns: 100% Absent 7 Few Many
% Awn-pointed % Short Mg Long
% Straight
Awn Insertion on Lemma: Basal Middle Middle Distal
11. PANICLE:
Type (in anthesis): 100% Open C Compact
Anthocyanin: 20 % Absent 80 % Present
Branches in Anthesis:
Branches in Fruit: 80 % Appressed 20 % Ascending 7 Spreading
Branch Surface: 100 % Smooth
12. SEED:
• 019 Grams per 1000 seed
13. SPRING GREEN UP:
2 l= Early (Exeter) 2= Medium (Astoria) 3= Late (Kingstown)

14. ENVIRONMENTAL	RESISTANCE: (0= Not	t test	ed, l= Susceptil	ole 2= Resistant)
2 Cold 2 H	leat 1 Drought	2	Shade 2 Oth	er (Specify) Sa	line Soil
15. DISEASE RESIST	ANCE (O= Not teste	ed 1=	Susceptible 2=	Resistant):	
Red Leaf Spot	- Drechslera eryth	rospi		sporium Leaf Spo Laris sorokinian	
2 Melting Out -	Drechslera poae (Helminthosporium	vagan	2 Dollar Spo	ot -(Sclerotinia	homoeocar
O Pythium Bligh	t - (P. aphaniderma	atum)	1 Pythium B	light (P. ultimu	<u>m</u>)
I Fusarium Blig	ht (F. roseum)		2 Fusarium 1	Blight (<u>F. tricin</u>	ctum)
2 Fusarium Patc	h (Pink Snow Mold)		2 Powdery M	ildew (Erysiphe	graminis)
(F. nivale Ophiobolus Pa	tch (<u>0</u> . graminis)			ut (<u>Ustilago</u> st	
O Copper Spot (Gloeocercospora sor	ghi)	2 Typhula B	light (Snow Scal	d)
2 Red Thread (Corticium fuciforme	<u>)</u>	2 Brown Pate	ncarnata) ch (<u>Rhizoctonia</u>	solani)
2 Stem Rust (Pu	ccinia graminis)		2 Crown Rust	(P. coronata)	
2 Leaf Rust (P.	poae-nemoralis)		Other		
16. INSECT RESISTA	NCE (O = Not tested,	1= S1	usceptible, 2= N	Resistant):	
O European Chafe			Garden Cha		
(Amphimallon O Chinch Bug (B	n solstitialis) lissus insularis)			pertha horticol	<u>a</u>)
O Armyworm (Cut			Other		
	ia unipuncta)				
following number	THAT MOST CLOSELY acteristics indicaters: 1= Submitted y, 2= Same as, 3=	e degr variet	ee of resemblar y is less than.	ce (D.R.) with	one of the
Character	Similar Variety	D.R.	Character	Similar Varie	ty D.R.
Growth Habit	Penncross	2	Leaf Color	Penncross	2
Awn Length	T		Panicle Type	Seaside	2
Seed Weight	Penncross	2	Turf Fineness		3
Cold Resistance Drought Resistance	Penncross	2	Heat Resistance		$-\frac{2}{3}$
Brown Patch	Penncross	2	Shade Resistar	cerenncross	3
Red leafspot	Penncross	3	en ender der til en mage i en sammen en men en e		

18. COMMENTS:

Regarding No. 15 above: category 2 (resistant) used for up to moderate suscepible, No. 1 (susceptible) used for more than moderately resistant.



United States Department of Agriculture

January 21, 1998

Research, Education, and Economics Agricultural Research Service

Marian R. Minnifield Secretary Plant Variety Protection Office NAL Building, Room 500 10301 Baltimore Boulevard Beltsville, Maryland 20705-2351

Subj: Expired PVPO's; disposition of

1. The following expired PVPO's have been transferred to the NPGS. Our records have been changed accordingly.

Serial Nun	<u>nber</u>	PVP Number	EXPIRED
107423	01	7900099	01/02/1997
107424	01	7800077	01/02/1997
107425	01	7900062	01/02/1997
107428	01	7900095	01/02/1997
107429	01	7700092	01/02/1997
108309	01	7900116	01/29/1997
108310	01	7900117	01/29/1997
108311	01	7900087	01/29/1997
108312	01	7800080	01/29/1997
108313	01	7800020	01/29/1997
109381	01	7900113	03/27/1997
109382	01	7900030	03/27/1997
109383	01	7900102	03/27/1997
109384	01	7900063	03/11/1997
109386	01	7300068	03/11/1997
109387	01	7900120	02/26/1997
109388	01	7700028	02/26/1997
109389	01	7700112	02/26/1997
109390	01	7900040	03/11/1997
109791	01	7800071	02/26/1997
110210	01	8000058	05/15/1997
110211	01	7800103	05/01/1997
110212	02	8000001	05/01/1997
110213	01	7800001	05/01/1997



110214	02	7200105	04/24/0197
110215	01	8000022	04/24/1997
110216	01	7900060	05/01/1997
110217	01	7900084	05/01/1997
110218	. 01	8000071	05/15/1997
110219	01	7900101	05/01/1997
110220	01	8000043	05/15/1997
110221	01	8000015	05/15/1997
110222	01	7900111	05/15/1997
110223	01	7900110	05/15/1997
110227	01	7900106	05/15/1997
110228	01	7900071	04/24/1997
110229	01	7900100	05/01/1997
110230	01	7900075	05/01/1997
110231	01	7900108	04/24/1997
110236	01	8000053	05/29/1997
110239	01	7900098	05/29/1997
110240	01	7900006	05/29/1997
110263	01	7900042	06/05/1997
110264	01	8000048	06/05/1997
110265	01	8000063	06/05/1997
110266	01	8000012	06/05/1997
110267	01	8000049	06/05/1997
110268	01	7800092	06/05/1997
112329	01	8000045	06/19/1997
112330	01	7900088	07/10/1997
112331	01	8000044	07/10/1997
112332	01	7800079	06/19/1997
112333	01	7900074	06/26/1997
112334	01	8000061	06/19/1997
112335	01	7700016	07/10/1997
112336	01	7700017	07/10/1997
112337	01	7900105	06/26/1997
112338	01	7900089	06/19/1997
112339	01	7900072	06/19/1997
112342	01	7900090	06/26/1997
112343	01	7900064	07/10/1997
112344	01	8000072	06/19/1997
112345	01	8000009	07/31/1997
112346	01	7800099	07/31/1997
112347	01	8000040	07/31/1997
112348	01	8000039	07/31/1997
112349	01	8000041	07/31/1997
112350	01	7900080	07/31/1997
112351	01	8000006	07/31/1997

SAMO

112352	01	8000027	07/31/1997
112353	01	8000024	07/31/1997
112354	01	8000076	07/31/1997
112355	01	8000025	07/31/1997
112356	01	8000062	07/31/1997
112357	01	8000102	07/31/1997
112360	01	8000023	07/31/1997
112361	01	7900078	07/31/1997
112362	01	8000093	07/31/1997
112363	01	8000020	07/31/1997
112364	01	7800019	07/31/1997
112365	01 .	7900079	07/31/1997
113482	01	8000118	09/11/1997
113483	01	8000114	09/11/1997
113484	01	8000119	09/11/1997
113485	01	8000113	09/11/1997
113486	01	8000086	09/11/1997
113487	01	7900070	09/11/1997
113488	0.1	8000033	09/11/1997
113489	01	8000034	09/11/1997
113490	01	7900022	09/11/1997
113491	01	8000090	09/11/1997
113492	01	8000105	09/11/1997
113493	01	7900056	09/11/1997
113494	01	7900057	09/11/1997
113495	01	8000096	09/11/1997
113498	01	8000099	09/11/1997
113499	02	7900082	09/11/1997
113500	01	7500083	09/11/1997
113501	01	8000013	09/11/1997
113502	01	7900083	09/11/1997
113503	01	7300090	09/11/1997
114293	01	8000130	10/16/1997
114597	01	7900104	10/16/1997
114598	01	8000077	10/16/1997
114599	01	8000111	10/16/1997
114600	01	8000011	10/16/1997
114601	01	8000134	10/16/1997
169608	01	8100103	07/15/1997

Sincerely,

Eygene D. Keys Computer Assistant Data Management